Abstract

The invention relates to a device and to a method for depositing especially crystalline layers from the gas phase onto especially crystalline substrates. The device comprises a heated reaction chamber with a substrate support that receives at least one substrate; one or more heated sources where a gaseous halide is formed by chemical reaction of a halogen, especially HCl, fed to the source together with a substrate gas, and a metal, for example GA, In, Al associated with the source, which is transported through a gas inlet section to a substrate supported by the substrate support; and a hydride supply for supplying a hydride, especially NH_3, AsH_3 or PH_3 into the reaction chamber. A plurality of rotationally driven substrate supports is disposed in an annular arrangement on a substrate support carrier, the sources being disposed in the center of said substrate carrier.